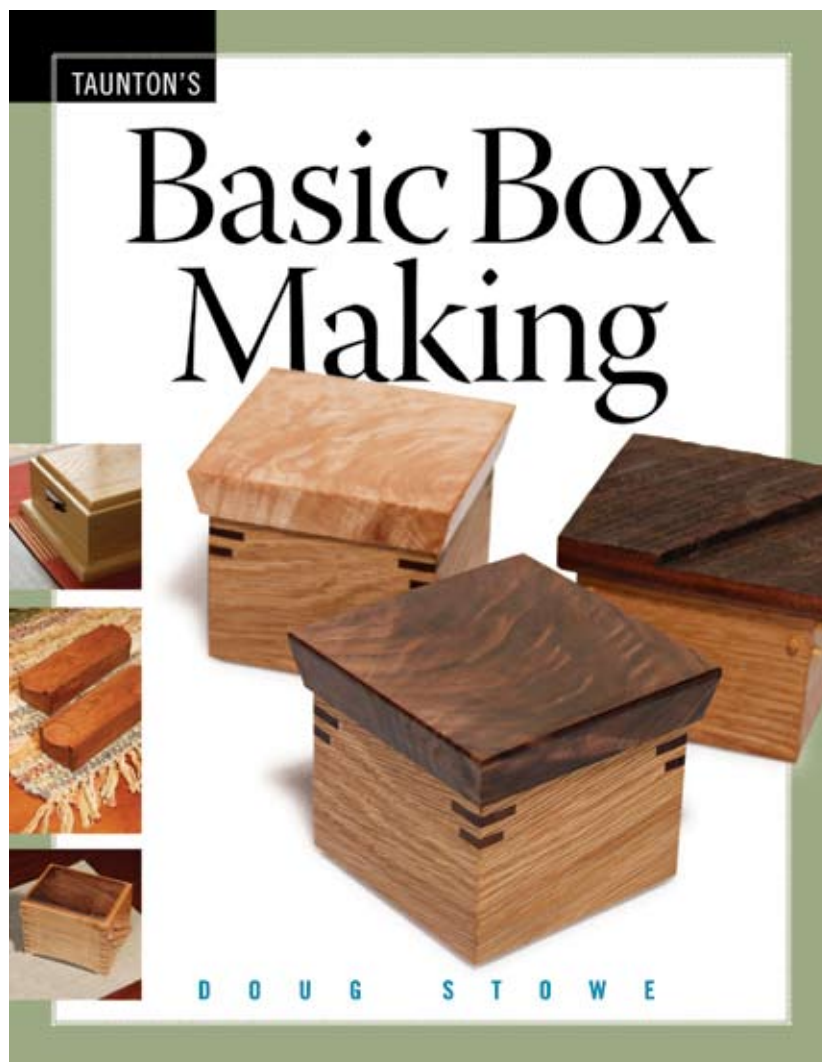


CHAPTER ONE: A Simple Lift-Lid Box

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A Simple Lift-Lid Box

A BOX, IN ESSENCE, is a very simple thing: a top, a bottom, and four sides. But elevating the form to a higher level of beauty and quality can seem complex. This handsome design is intended as a starting point to teach basic techniques that will lead to better results on more complex projects.

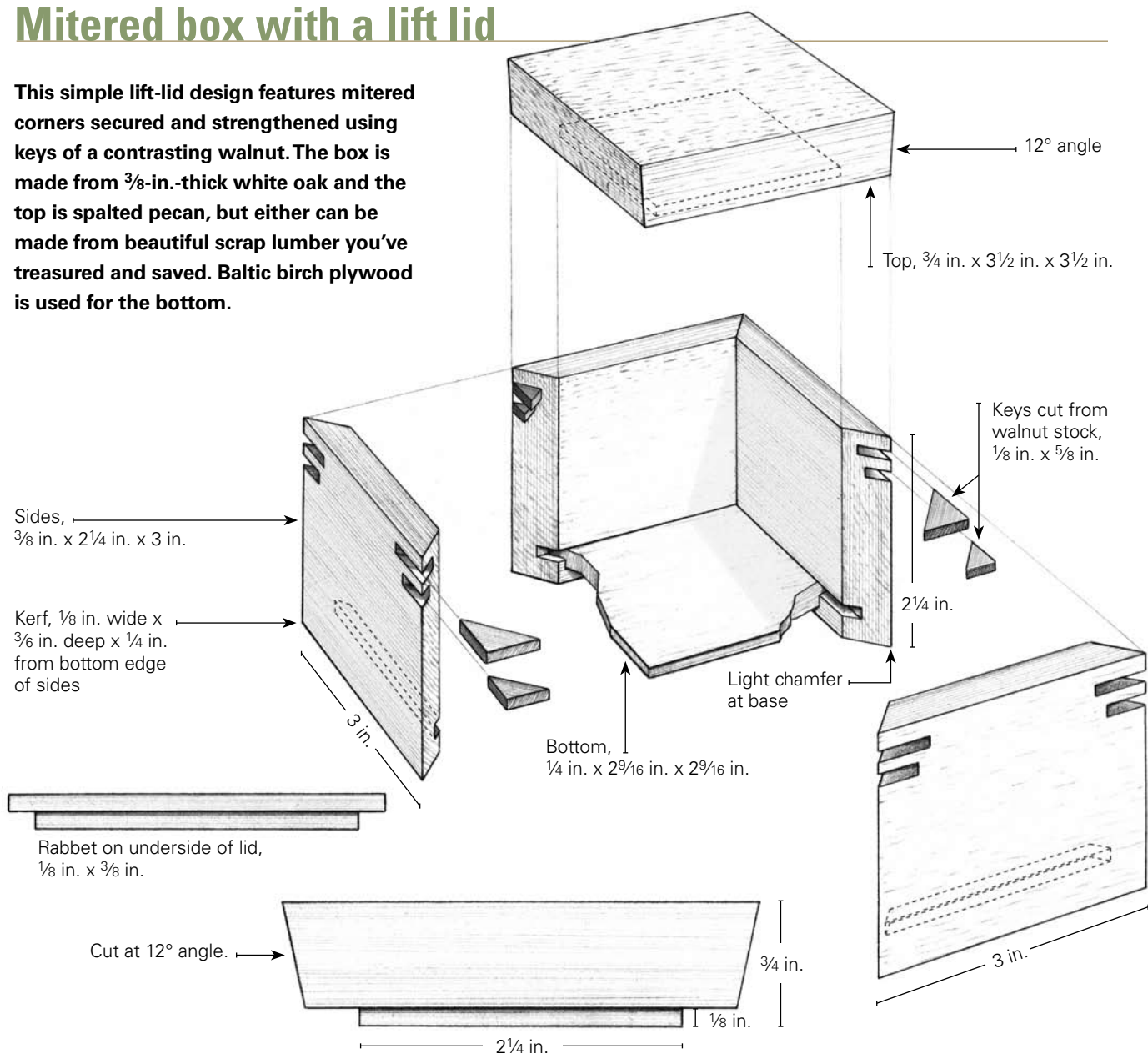
The sides of this box are joined with simple miter joints strengthened by adding keys, a task made easy and accurate using a simple tablesaw jig. A plywood bottom is glued securely into saw kerfs cut in the sides, reinforcing the lower portion of the mitered joints. The lift lid is cut from hardwood and rabbeted for a snug fit.

As a practical matter, this box can be used as a ring box or gift box with this warning: The box may become treasured more than the gift inside. The box pictured here is made of white oak, but by changing the size, proportions, joinery, or wood choices, you can create countless variations on this simple design.



Mitered box with a lift lid

This simple lift-lid design features mitered corners secured and strengthened using keys of a contrasting walnut. The box is made from 3⁄8-in.-thick white oak and the top is spalted pecan, but either can be made from beautiful scrap lumber you’ve treasured and saved. Baltic birch plywood is used for the bottom.



MATERIALS			
QUANTITY	PART	ACTUAL SIZE	CONSTRUCTION NOTES
4	Sides	3 in. x 2 1⁄4 in.	3⁄8-in. white oak
1	Bottom	2 5⁄8 in. x 2 5⁄8 in. *	1⁄4-in. Baltic birch plywood
1	Lid	3 1⁄2 in. x 3 1⁄2 in.	3⁄4-in. hardwood of your choice
16	Keys	1⁄8-in. thick x 5⁄8-in. wide	1⁄8-in. walnut, crosscut at 45° and sized to fit

*Determine actual size by measuring widest point of saw kerf in box sides.

Prepare the stock

THE RIGHT START CAN MAKE OR BREAK a project: If you don't start with stock that is flat, square, and straight on all sides, it's difficult to build a square box. Even a small amount of warp in the finished stock makes it hard to pull corners together during assembly, and a poorly fitted joint is doomed to failure. Fortunately, preparing stock properly is a simple procedure.

1. Crosscut your stock to a length more easily handled on the saw. I generally prefer resawing stock in the range of 24 in. to 36 in.—long enough to allow a secure grip on the material, but short enough so it is not hard to manage.

2. Pass either of the rough edges of the stock across the jointer. You may need to take more than one pass over the jointer, working until the edge is flat enough to ride smoothly along the tablesaw's table in the next step. At this point, however, jointing a perfectly flat edge is unnecessary.

3. Cut the stock to rough width on the tablesaw, allowing $\frac{1}{4}$ in. to $\frac{3}{8}$ in. more than is required for the exact dimensions of the box sides. Use a push stick to finish the cut.

Resawing at the tablesaw

Resawing stock can be done on either the bandsaw or the tablesaw, but for small stock, as is often used in box making, the tablesaw is an easier option. I use a thin-kerf blade because it requires less power and provides for a slightly greater finished thickness. That said, a standard $\frac{1}{8}$ -in.-kerf blade will also work.

WORK SMART

By listening to the jointer's sound as it works, you can tell if it's removing stock throughout the cut. As the jointer passes through high and low points in the edge of the stock, its sound will vary, becoming more uniform when the stock is straight.



SURFACE ONE SIDE Passing one face of the board across the jointer makes resawing more accurate and safe, but a perfect finish is not required at this stage. Simply get one side flat enough to follow the tablesaw fence.



RESAW AT THE TABLESAW Set the blade just over half the width of the stock so that the hands can be kept a safe distance from the blade. Before cutting the second edge, flip the stock end over end, making sure that the same face is against the fence.

WORK SMART

Although it may be harder for the beginning woodworker to imagine the beauty of wood while its grain and color are hidden by a rough surface, the additional thickness of unplaned wood offers greater flexibility for resawing.

1. Begin preparing the stock for resawing by passing one face across the jointer (**PHOTO A**). At this point, a perfect finish is not required. The stock needs to be flat enough to follow the fence safely. Removing too much stock may limit your options for use of the offcut material or make it too thin for use.

2. For small boxes like this, I often am able to rip right down the middle to get equally thick planed sides, but even thinner stock from offcuts can be useful in other parts of box making. At the tablesaw, don't try to resaw the full height in a single pass.

Instead, adjust the tablesaw's blade height to cut just over half the height of the stock at one time. By reducing the blade height, the stock passes more easily through the cut and there is less risk to the hands. Holding the stock upright and against the fence, take a pass along one edge.

3. Flip the stock end over end, keeping the same face against the fence, and make another cut along the opposite edge (**PHOTO B**).

WORK SMART

Severely warped or twisted stock should be avoided when resawing. Not only will it produce useless material, but cutting it can present a safety hazard, particularly for a less experienced box maker.

Plane and size the stock

A small portable planer is more than sufficient for box making, and it often gives better results than the large planers found in many cabinet shops. Large planers often have serrated infeed rollers that may leave marks when you're removing a thin layer of wood, as is often the case in box making. Small portable planers, on the other hand, enable you to fine tune the thickness by removing small amounts of stock at a time.

- 1.** Your first pass through the thickness planer should be taken with the rough face toward the planer knives (**PHOTO C**). Plane the material to final thickness by removing small amounts from each side, flipping the stock over between cuts.
- 2.** Once you've reached the desired thickness, smooth one edge of the stock at the jointer (**PHOTO D**).
- 3.** Cut the stock to finished width by trimming the opposite edge on the tablesaw. Make sure you have a push block at hand to finish the cut. For greater safety, I also use a shopmade zero-clearance insert with an integral splitter, but after-market zero-clearance inserts are available for most saws (**PHOTO E**).



PLANE DOWN THE STOCK Plane the stock to thickness in small increments, checking the surface after each pass. Defects can often be removed by changing the feed direction of the stock.



JOINT ONE EDGE SMOOTH Use the jointer to square one edge of the stock. Push the stock slowly through the cut and watch carefully for defects that might mar the appearance of the assembled box.

RIP AT THE TABLESAW To cut the stock to width, keep one hand stationary to hold the stock tight against the fence and use the other to feed the stock. Have a push stick ready to finish the cut.



Mark and cut the box sides

WHEN USING OAK OR ANY WOOD WITH a distinctive grain pattern, carefully cutting and arranging parts can make the difference between a plain old box and one that might be regarded as art. I like for the grain pattern to run continuously around the box corners. To achieve this effect, I simply mark the parts in order prior to cutting them from a single board. During assembly the marks tell me which boards go where. Simple marking methods help keep parts aligned throughout the building process.

For making small boxes, there are two different tablesaw methods for cutting the mitered corners: You can angle either the blade or the miter gauge to 45 degrees. I normally make this cut with the blade tilted to 45 degrees (see p. 59 for more on this

method), but for this small box it's quick and easy to angle your miter gauge. Leave the blade set at 90 degrees and raised to the full height of the box sides. I use an aftermarket miter guide on my saw (because it has positive, accurate stops to assure that it is at 45 degrees), but the stock gauge on most saws will work fine. This technique works well on box sides low enough for the saw to handle in a single pass, and it comes in handy when you're reluctant to adjust the arbor of the saw to 45 degrees.

Mitering the box sides this way requires carefully checking the angle of both the miter gauge and the blade. After setting the saw, I make a test cut on scrap wood, then check the results using a combination square (**PHOTO A**). If adjustments need to be made, it's better to do so before cutting actual box parts.



TEST THE ANGLE Using wide stock for a trial run is a good way to test the accuracy of the miter angle. Once cut, hold the two miters against a square and check for gaps on the inside or outside of the joint.



CLEAR MARKS PREVENT MISTAKES

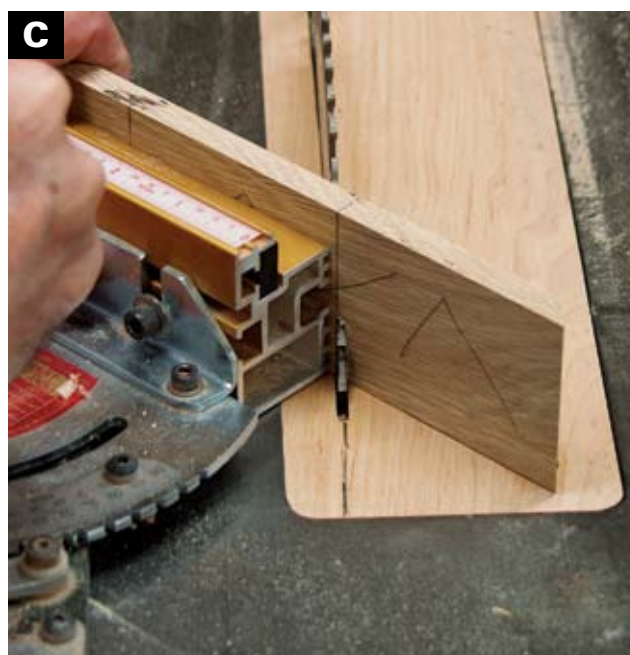
Mark the stock in pencil to help you reassemble the sides with matching corners. An inverted “V” points to the top of the stock. The sides can be numbered, marked front, left, back, and right, or just marked with a squiggled line from end to end.

1. To lay out the box sides, mark the top of the stock to denote the approximate cut lines, allowing $\frac{1}{4}$ in. to $\frac{3}{8}$ in. of waste between cuts. This wiggle room allows for slight inaccuracy in the initial cuts but has little effect on the matching grain at the box corners. To help keep parts in order, mark out an inverted “V” on the sides, pointing to the top edge on the face side of each piece. I also make a squiggle line through the length of the stock. During assembly, this squiggle helps keep the parts in order (**PHOTO B**). All of the pencil marks are sanded away after the box is assembled.

WORK SMART

Even the small width of a pencil line can make the difference between sloppy work and perfectly fitted joints. But by using jigs, sleds, and stop blocks you can alleviate the errors easily. Rather than risk inaccuracies from marking on stock with a pencil or knife and then aligning it with the sawblade, simply measure from the edge of the sawblade to the stop block.

2. Begin cutting the parts to rough length by cutting a miter at one end of each side piece. To help align parts and reduce waste, it helps to make a mark on the throat plate of the saw that denotes the cut line (**PHOTO C**).



MITER ONE END Cut each of the right-hand miters, leaving the stock slightly oversize in length. Note the mark on the tablesaw insert that helps in aligning the stock for the first cut. Align the cut mark on the stock with the line on the tablesaw insert.



**STOP BLOCKS
ENSURE ACCURACY**
Use a stop block clamped in place on the miter gauge to cut each box side to length. This box is square, so each cut is made with the stop block in the same position.

3. To cut miters on the opposite ends of the sides, use a piece of scrap clamped to the miter gauge as a stop block. Using a clamp to hold the stock is both safer and more accurate than trying to hold the small pieces with your hand. Not only does it

get your hands out of the way, but it also applies enough pressure to hold the stock in place throughout the cut. C-clamps or quick-release clamps work well—just be sure to place the clamp so that it won't interfere with the path of the blade (**PHOTO D**).

CUTTING A PERFECT MITER

When cutting miter joints there are two common but easily avoided errors that lead to sloppy joints. The first is in the accuracy of the angle. The second which is often overlooked, is the length of the box sides. If the length of each side doesn't perfectly match its mate on the opposite side, no amount of precision in setting the angle can compensate. You will note throughout this book that I rely on stop blocks for controlling the accurate length of parts, achieving a level of accuracy that is hard to match when measuring

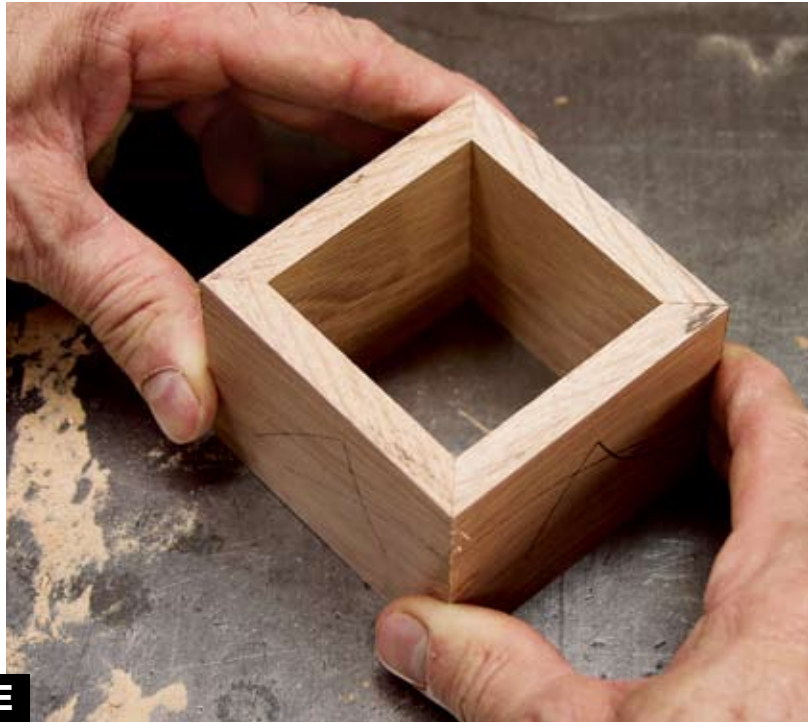
and marking multiple parts with a pencil.

To double-check the angle cut for miters, I use a simple technique shown in photo on p. 9. Using wide stock to test the angle, even for thin sides, makes the discrepancies easily apparent. Another popular technique is to miter four pieces equal in length and check that the angle closes at all corners. If one or more corners shows a small space at the inside, either the angle of the blade or the miter gauge should be decreased very slightly.

If the corners appear slightly open on the outside, increase the angle very slightly. It can be aggravating to go through trial and error every time you change the arbor setting of the saw or the exact angle of the miter gauge, so when you get it just right, adjust and tighten the angle stops on your miter gauge. For greater accuracy, consider buying an after-market miter gauge—it's an investment that you won't regret.

A PERFECT FIT Aim for miters that go together without gaps on the inside or outside of the corners. It is satisfying when the first trial assembly shows miters that fit this well. Cutting a test miter in wider stock will help to assure a perfect fit even before the first side is cut.

4. Once the joints are cut, dry-assemble the box sides and check the accuracy of the miters. A perfect fit will have no voids on either the inside or the outside of the miter (**PHOTO E**).



Fit the box bottom

USING PLYWOOD FOR THE BOTTOM OF THIS box allows you to forget about the seasonal wood movement that occurs with hardwoods. I used 1/4-in. Baltic birch plywood, but all plywoods offer more stability than hardwoods. By housing the plywood bottom in a groove, it's easy to keep the entire assembly square during glue-up. Gluing the bottom in place also adds strength to the box.

KERF THE SIDES A single pass over the blade cuts saw kerfs in the box sides to house the bottom. Use your left hand to hold the parts against the fence and keep your right hand on the push block to guide the wood through the cut.



MEASURE THE GROOVE

Use a tape measure to determine the size of the box bottom.

Subtract $\frac{1}{64}$ in. to $\frac{1}{32}$ in. to ease the fit.



1. Start by cutting a $\frac{1}{8}$ -in. saw kerf in the lower portion of each box side. Pay close attention to the inverted “V” markings on the box sides. For making this cut, the “V” should be visible and pointing away from the tablesaw fence. I use a $\frac{1}{8}$ -in.-kerf combination blade, which makes a nice flat-bottomed cut, but any $\frac{1}{8}$ -in.-kerf blade will work. Raise the blade $\frac{3}{16}$ in. above the surface of the saw and set the fence so that it measures $\frac{1}{4}$ in. to the outside of the blade. I use $\frac{1}{4}$ -in.-thick plywood—on edge and against the fence—as a quick measuring aid. Use a push block to guide the box sides across the saw (**PHOTO A**).

2. To achieve a perfect fit for the bottom, you’re better off measuring the actual parts in hand than blindly following the measurements given in the Materials List on p. 5. To determine the length and width of the bottom, measure the full width of the deepest part of the grooves cut in the box sides (**PHOTO B**). Because this is a square box, the length should be the same as the width. Reduce the measurement by $\frac{1}{64}$ in. to $\frac{1}{32}$ in. to ease the fit as the box is assembled.



RIP THE BOTTOM TO SIZE Use the tablesaw and fence to rip the $\frac{1}{4}$ -in. Baltic birch bottom to width. The blade should be lowered so that the height of the cut is $\frac{1}{8}$ in. to $\frac{1}{4}$ in. above the thickness of the stock.



CROSSCUT TO WIDTH Use a miter gauge or crosscut sled to cut the bottom to length. A stop block assures the accuracy of the cut.

3. To size the bottom, rip the plywood to width at the tablesaw (**PHOTO C**). Then cut the bottoms to length using the miter gauge. Clamping a stop block in place helps to accurately control the length. Even if you are only making one box, this production technique provides greater accuracy—and it's a lot safer than trying to crosscut such a short piece against the fence (**PHOTO D**).

4. To form the tongue that fits into the grooves on the sides, adjust the fence so that there is $\frac{1}{8}$ in. between the fence and the blade. Rather than going by measurements alone, I begin making this cut with the blade a bit low and adjust gradually to achieve a perfect fit (**PHOTO E**).



RABBET THE BOTTOM Use the tablesaw to cut the tongues on the box bottoms. The space between the blade and fence must equal the width of the saw kerf cut in the box sides. Making a test cut on scrap stock is the easiest way to check your settings.

Assemble the box

CARE MUST BE TAKEN DURING ASSEMBLY to keep the parts in order and the grain patterns continuous around the corners. This is where the squiggle line comes in handy, particularly for woods with a subtle grain pattern.

1. Begin by laying out the parts in the order of assembly, with their outer faces up on the bench. You'll flip the pieces over as the glue is applied (**PHOTO A**).



RUBBER BANDS MAKE PERFECT CLAMPS Lay out parts to make certain that the corners match, then spread glue on each of the mitered surfaces. Large rubber bands provide sufficient clamping pressure when the joints fit well. Additional rubber bands can be added to increase clamping pressure.

ASSEMBLING WITH TAPE

An alternate method of assembly that is equally effective is to use tape. This is a favorite technique among my students. Simply lay the parts out in order and put tape where the sides meet. Apply glue to all the mitered surfaces, roll the box around the bottom, and apply tape to the last corner. Additional layers of tape increase the pressure on the joints, holding them securely as the glue dries. One advantage of using clear tape is that you can see marks on the box during assembly, and it's easy to check the alignment of the grain. If any adhesive is left on the wood once the tape is removed, a light sanding prior to finishing will remove it.



CLAMP UP WITH TAPE Lay out the box sides in order, then tape the joints with clear package tape. Apply glue to the joints, inset the bottom, and roll the sides around the bottom.

2. Spread glue carefully onto each mitered surface. Also, place a dab of glue in the groove used to house the bottom. If you are using a hardwood bottom this glue should be avoided, but in this box the plywood bottom reinforces the joint and makes miter keys unnecessary in the lower sides of the box.

3. On mitered boxes as small as these there is no better way to clamp parts together than to use rubber bands. The amount of clamping pressure is less important than keeping the parts held firmly in position while the glue sets. The rubber bands are easy to adjust, allowing you to tweak the alignment of the joints before the glue begins to set. You can add more rubber bands if needed, each layer overlapping previous ones until you've built up enough pressure to close the joints. For an alternative assembly method, see "Assembling with Tape," above.

4. Measure from corner to corner to check that the box is square. Measurements across both directions should be exactly the same. If not, a light squeeze on the long dimension is usually enough to bring the parts into alignment (**PHOTO B**).



CHECK FOR SQUARE Develop the habit of checking to see that all your assemblies are square. If the tape measures equally from corner to corner from alternate directions, the box is square.

Add keys to the corners

INSERTING KEYS IN THE MITER JOINTS OF this box not only strengthens the corners, but also adds a decorative element and draws your eye toward the top of the box. I used black walnut keys to contrast with the oak sides, but using keys of the same species would lend the box a more subtle look. To cut the slots for the keys, you'll need to make a simple key-slot jig (see "Quick Jig for Key Slots" below) that rides against your table-saw fence. This easily made jig is very useful and effective for small boxes. If you expect to make a

number of boxes or simply want a more versatile and long-lasting fixture, take a look at the sled on pp. 106–107.

1. After you've assembled the box and made the key-slot jig below, you're ready to start cutting key slots on the box corners. Begin by raising the table-saw blade to about $\frac{1}{2}$ in. above the table.
2. Nest the box into place in the jig, using the fence to control the position of the cut.

QUICK JIG FOR KEY SLOTS

Cutting the miter key slots for small boxes requires a simple and effective jig that should take under five minutes to make. You'll only need a scrap piece of $\frac{1}{4}$ -in. plywood or MDF (about $3\frac{1}{2}$ in. wide and 16 in. long) and a 12-in. length of 2x4.

1. Use the tablesaw to cut the 2x4 at a 45-degree angle somewhere near the middle of the board. Accuracy of the angle is important but the exact placement of the cut is not (**PHOTO A**).



CUT THE ANGLE Use the miter gauge to cut angles on 2x4 stock.



GLUE UP THE JIG Arrange the angled pieces to make a cradle, then add glue to attach the back.

2. Cut a piece of $\frac{1}{4}$ -in. plywood to the same width as the 2x4 and approximately the same length as the 2x4 laid out (**PHOTO B**).
3. Spread glue on one face of each 2x4. Carefully align the plywood and attach it with brad nails. Keep the nails outside of the area that is to be cut (**PHOTO C**).

3. Make a cut at each corner, rotating the box between cuts. Care should be taken to hold the box and jig tightly to the fence throughout the cuts. Letting the box slip slightly can cause a wider cut and lead to a poor-fitting key slot.

4. Move the fence $\frac{1}{4}$ in. further from the blade to cut the second set of slots. To give the design a more interesting decorative effect, these slots aren't as deep as the first ones. To make shallower cuts, lower the blade slightly, about $\frac{1}{8}$ in. **(PHOTO A).**



CUT THE KEY SLOTS Cradle the box in the key-slot jig, and while holding the box and jig tightly against the fence, pass them across the blade. Rotate the box between cuts to make key slots at all four corners.

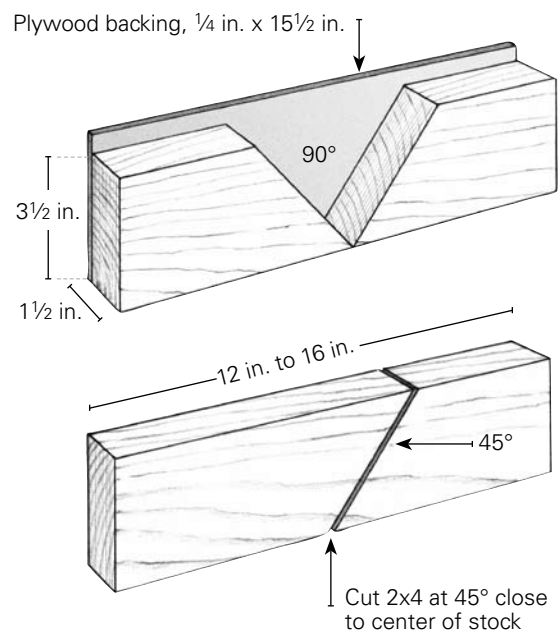


NAIL IT IN PLACE When securing the back to the cradle, take care to place nails out of the path of the blade.

To use the jig, place the box within the “V.” Hold the box and jig tightly against the fence, then push them through the blade. After making multiple cuts in multiple spots on this jig, the underside will get a little worn out—take five minutes to make another, or invest your time and materials building the long-lasting jig shown on p. 106 in the Fold-Out Jewelry Box project.

Key-slot jig

This easy-to-build jig makes cutting key slots fast work at the tablesaw. To make one, you'll need only a scrap of 2x4 and a little plywood or medium density fiberboard (MDF).



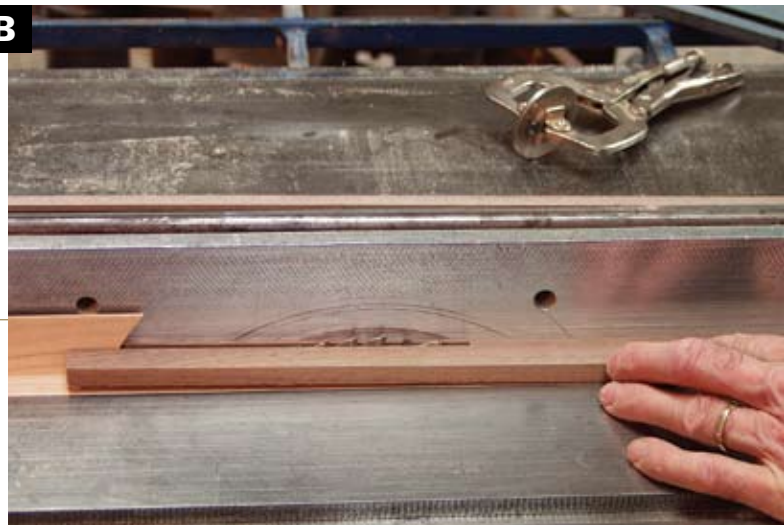
CUT THE MITER-KEY STOCK
Use the tablesaw to cut $\frac{1}{8}$ -in. stock for making miter keys. Perfectly sizing the keys usually requires some trial and error. Test the fit in the key slots, and discard strips that fit either too tightly or too loosely.

Cutting the keys

1. To make the keys, start with stock that is $\frac{1}{8}$ -in. wider than the deepest key slot. At the tablesaw, rip thin strips from that stock. Use a splitter to help control the thin stock through the cut, and have a push stick ready to finish the cut. Check the fit of your strips as they come off the saw and discard strips that are too loose (**PHOTO B**). I prefer keys that fit slightly tight, but if you have to use more than finger pressure or a slight tap to fit them into the kerf, you risk breaking the joint open.

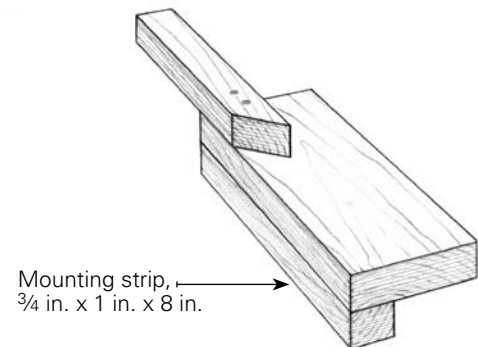
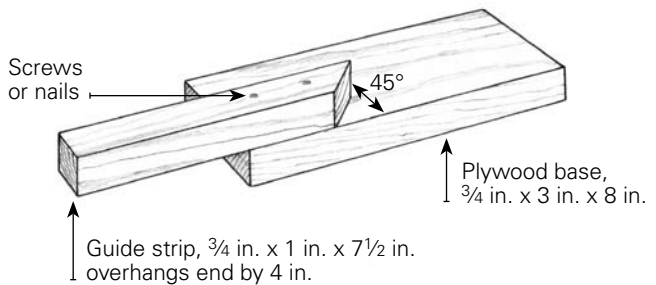
2. One of the easiest ways to cut the strips into triangular keys is to use a quick-sawing jig like the one shown below (**PHOTO C**), but they could also be cut using a miter gauge on the tablesaw or bandsaw. I use a Japanese dozuki saw for a smooth quick cut with the jig. Clamp the jig in the vise or to your benchtop and make the first cut. To form the triangular keys, slide the stock down, flip it over, and make another cut.

B



Miter key jig

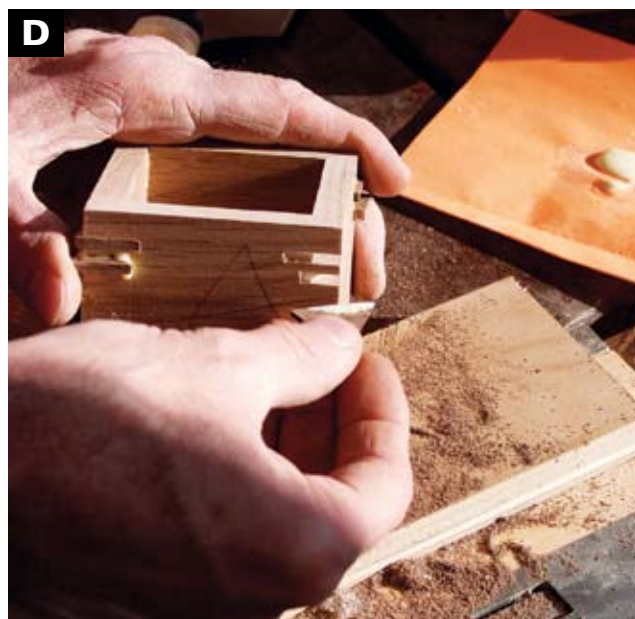
When building this miter jig, use a wide board for the base so that you can clamp the jig to the bench top. Alternately, nail a strip onto the underside so you can clamp the whole assembly into a vise.



CUT THE KEYS TO SHAPE Cut one end at a 45-degree angle, then flip the piece over and make the second cut to form the key. Keep flipping and cutting and in a matter of minutes you will have made enough keys for several boxes.



C



D **INSERT THE KEYS** Spread a bit of glue on the leading edge of the keys, then slip them into place.

3. To install the keys, spread glue on the top, bottom, and long flat edge of each, then press them into place. If a key is too tight to press in place with your fingers, give it a tap with a small hammer. If it takes more than a slight tap, however, you run the risk of breaking the glued joint. It may also be helpful to hammer the keys slightly on a flat surface, compressing them before fitting. Moisture in the glue will cause the keys to swell to their original thickness once they're installed (**PHOTO D**).



E **SAND THE KEYS FLUSH WITH SIDES** Use a stationary belt sander to sand the keys flush with the surrounding box sides. Sanding by hand is a little slower, but it works as well.

4. Use a stationary belt sander to sand the keys flush with the box sides. This job can also easily be done by hand with a sanding block, or by working the box across a flat piece of coarse sandpaper affixed to the surface of a workbench (**PHOTO E**).

Make a lift lid

LID DETAILS ARE ONE OF THE MANY WAYS to personalize this box, and for more variations on this same design, see “Design Options” on p. 22.

To make the lid, you can choose between various woods, selected for their beauty and character. For variety, I cut the lids for these boxes from curly maple, figured walnut, spalted maple, and coarsely textured walnut with an extremely rough-sawn side

that shows signs of exposure to wind, rain, and sun during the process of air drying.

1. To make the $\frac{3}{4}$ -in.-thick lid, begin by cutting it to size using the same tablesaw methods you used to cut the bottom. Rip the planed stock to width and then use either the tablesaw miter gauge or a crosscut sled (see the box in “Rustic Treasure Box”



FIT THE TOP Use the router table and a straight bit to rabbet the lid. Rout the end grain first so that the routing of the side grain will remove any tearout resulting from the first cuts.

on pp. 28–29) to cut it to length. Even if you are making only one lid, ripping longer stock is safer than trying to cut a single lid from a small board.

2. Cut a lip along the underside of the top using a router table and straight-cut router bit. Using the router table allows you to adjust the fence (and the width of the lip) in small increments until the base of the top fits snugly inside the box. For the best results, use the widest straight-cut



CUT THE TOP TO SHAPE To cut the top to a more interesting shape, angle the tablesaw blade to 9 degrees. Leave enough edge on the sides of the lid to follow the fence during each cut.

router bit you have. My preferred bit is 1¼ in. in diameter, but a ¾-in. or 1-in. diameter bit would work also (**PHOTO A**).

3. There are an infinite variety of attractive ways to shape the lid for this box. As an example, use the tablesaw with the blade tilted to 8 or 9 degrees and cut the lid to shape by passing it between the blade and the fence (**PHOTO B**).

Final touches

ONCE THE BOX IS ASSEMBLED, IT'S WORTH taking a few extra steps to give it a more refined look. I use a 45-degree chamfering bit in the router table to rout the bottom edge of the box (**PHOTO A**), but the same effect could be achieved with a block plane or a coarse sanding block. I prefer to do most of the final sanding on an inverted half-sheet sander—it's a lot less work than sanding by hand. I begin sanding with a stationary belt sander using 100 and 150 grits. For the final sanding, I use an inverted half-sheet sander progressing through 180, 240, and 320 grit. Hand-sanding would also work (**PHOTO B** on facing page).



On this box I used a Danish oil finish because I love the way it brings well-sanded wood to life. Pay close attention to the directions on the can. As a general rule, I flood the surface of the wood with a generous first application. I use a brush to reach the inside corners of the box and then use a bit of rag to wipe the sides and lid. I keep the surface wet for about an hour before rubbing it out. Torn up cloth from an old cotton shirt is an excellent material for wiping down the oil before it is fully dried. In rubbing out the finish, the objective is to keep spreading the finish around evenly into the pores of the wood. The second application builds to a higher gloss, but dries more quickly. Be watchful on the second and third coats and make sure that you don't let the finish become tacky before rubbing it out. Usually, the second and third coats need only half the time of the first coat before rubbing out (**PHOTO C**).



B **SAND TO 320 GRIT** An inverted half-sheet sander clamped to the workbench is used to smooth small boxes in a short amount of time.

APPLY THE FINISH

A Danish oil finish brings the wood to life. Old T-shirts make good rags for rubbing out. Spread out oily rags to dry flat before throwing them away.

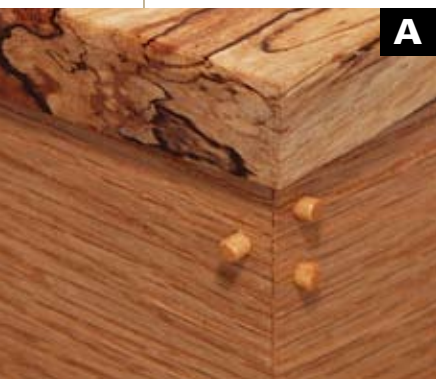


CHAMFER THE BOTTOM Use a chamfering bit in the router table to shape the bottom edges of the box. If you prefer, rounds, coves, or other router profiles can be used instead.

DESIGN OPTIONS

There are many ways to personalize this box. You can alter almost any aspect of this box—size, wood choices, or joinery techniques.

ONE EASY WAY TO ACHIEVE A DRAMATICALLY different look is to use dowels rather than keys to reinforce the miter joints (**PHOTO A**). The first step is to drill holes to accommodate the dowels. Use a drill press outfitted with a fence and stop blocks to set the exact locations for the holes. At each corner, drill two dowels from one side and a single hole centered on the adjacent side (**PHOTO B**). To cut the short dowels to length, I use a tablesaw sled outfitted with a stop block, then hold the offcut in place using the eraser end of a pencil (**PHOTO C**). If you're only cutting a few dowels, however, a handsaw works fine. Sand the box thoroughly before installing the dowels. Use sandpaper to soften the edges of the dowels, then drive them in place with a tack hammer. If the fit is tight, you won't need any glue.



Making the lid from a figured or contrasting species of wood or cutting it to a slightly different shape are two other easy ways to lend this box a new look. For the roughsawn walnut lids I rabbeted the underside to fit the box and then chamfered the lower edges with a stationary belt sander. A light cleaning with a stiff brush to loosen dirt followed by the application of an oil finish allowed it to tell its own interesting story. Burlled and figured woods like the maple and walnut lids are well featured when used in the making of this box.

CUT THE DOWELS TO LENGTH (ABOVE RIGHT) Either a tablesaw sled or a handsaw can be used to cut the dowels to length. Here, a stop block controls the length and the eraser end of a pencil is used to keep the small pieces from being thrown by the saw.

DRILL THE BOX TO ACCEPT DOWELS (ABOVE CENTER) For a slightly different look, dowels are used to reinforce the corner joints. A 1/8-in. dowel is a good choice for small boxes like these. A drill press outfitted with a fence is used to drill holes that are perfectly spaced from the edge and uniform in depth.